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National Aeronautics and
Space Administration

Lewis Research Center
Cleveland, Ohio
44135



Reply to Attn of 4210

June 9, 1981

Dear PV Product Manufacturer:

The Photovoltaic Stand-Alone Applications Office of the NASA-Lewis Research Center has been conducting market assessment studies for the U.S. Department of Energy's National Photovoltaic Program. An important part of these studies is an assessment of the market potential for PV products in the agricultural sector.

Recently as part of this effort a visit was made to Morocco by a NASA/contractor assessment team composed of representatives of DHR, Inc., and Associates in Rural Development. A NASA Government representative coordinated the team efforts and made presentations to various ministries. For your information enclosed is a brief "highlights" of the findings of that team. Included as an attachment is the most current Department of State "Background Notes" on Morocco. A more detailed report will be available for distribution later this year. Similar "highlights" as well as final detailed reports are planned for subsequent market assessment trips.

We hope this information will be of value in your international marketing planning. We, of course, would be pleased to receive your comments or suggestions. For any additional information regarding these assessments, please contact us at (216) 433-4000, ext. 5255.

Sincerely,

William Brainard
William A. Brainard
Stand-Alone Applications
Project Office

Enclosure

(NASA-TM-82288) HIGHLIGHTS OF NASA/DOE
PHOTOVOLTAIC MARKET ASSESSMENT VISIT TO
MOROCCO (NASA) 11 p HC A02/MF A01 CSCL 05C

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HIGHLIGHTS OF NASA/DOE PHOTOVOLTAIC MARKET ASSESSMENT VISIT TO MOROCCO

A NASA/DOE sponsored photovoltaic (PV) market assessment study team recently returned from a four week visit to Morocco (April 19 to May 15, 1981). There the team contacted public and private sector officials and examined a broad range of agricultural, rural development and other power applications in various regions of the country to determine the potential market for PV products in Moroccan development. The purpose of this brief highlights report is to expedite dissemination of information to the U.S. PV industry on what is estimated as a limited potential for PV in Morocco.

Morocco, with a population of almost 20 million and an annual growth rate of 3.1 percent, has been experiencing increasing food and balance-of-trade shortfalls in recent years. Economic problems are exacerbated by this year's drought, oil import price rises (Morocco is dependent for over 80% of its energy resources), and the continuing border war in the south. Despite overall economic problems, American Embassy and consulate commercial reports continue to foresee U.S. trade opportunities, predicting that Morocco will resume a capital-intensive development strategy in the 1980's after an imposed three-year government austerity program. Morocco gains the majority of its foreign exchange from the export of phosphates, of which it is the world market's largest supplier, and secondarily from agricultural exports (primarily citrus).

Morocco has very large undeveloped oil shale resources but expects to have 2-4 commercial-scale production facilities by 1990. Morocco has some coal resources, whose production is heavily subsidized, and has begun limited coastal exploration for oil, but will remain heavily dependent on imported oil for some time to come. The government of Morocco has a very positive policy toward solar development and is establishing a renewable energy development center with the assistance of U.S. AID; officials are also considering elimination of tariffs on solar equipment.

Gasoline and diesel prices are regulated at approximately \$3.10 per gallon and \$1.65 per gallon, respectively, but are reported to be higher in rural areas. Electricity production was 5 billion kWhr in 1980, up 15% from 1979, with the following breakdown: 40% oil, 36% hyrc, and 24% coal. Electricity supplied by the grid is fairly reasonable (8-11¢ per kWhr) and reliable, but largely limited to urban areas. Rural areas are not generally connected; only 7 percent of the rural population (59 percent classified as rural) is currently served by the grid. Diesel and gasoline generator sets are used throughout rural areas, but gasoline systems are declining due to the large fuel price differential. Rural electrification plans indicate that only 8 percent of the rural population will be served by the grid by the year 1984, and 10 percent by 1995.

Morocco is located between twenty-seven and thirty-six degrees north of the equator, excluding the disputed Spanish Sahara, with Mediterranean climate in the coastal plains and dry Sahel and desert proceeding inland and over the Atlas ranges. Quantitative solar data is available for most of Morocco in terms of hours of sun over the past 20 years, and for several locations in terms of Kcal/m²; the data indicates that insolation conditions are favorable throughout the country, and can be found in the forthcoming report.

The agriculture sector, the primary focus of the PV marketing study, accounts for approximately 17 percent of GNP in Morocco, and about 18 percent of public investment over the past three years. The major crops and products are grains and feed, oilseeds and products, citrus, vegetables and fish, with citrus, fish and vegetables constituting the major exports. Agriculture is highly rain dependent in Morocco and subject to large production fluctuations. Thus, the new development plan includes continued expansion of irrigated lands (currently less than 10% of cultivated land). Increased emphasis is placed on agriculture in general in the new development plan (1981-1985), but because of economic and public finance constraints, agricultural and general rural development investment may well be less than planned in the current development period. Morocco, like many developing nations, clearly has a need for reliable remote power systems for numerous agricultural applications, but also like most developing nations, does not have the financial resources to invest in the relatively high capital cost PV equipment.

The potential for PV markets in Moroccan agriculture over the next five years is considered negligible, improving in the medium to long term. This is due to two main reasons. One, Moroccan public sector agricultural institutions, which might be interested in PV power because of its greater reliability in comparison with diesel motors, even where it is not competitive in strictly cost terms, are operating under severe budget limitations. Barring donor assistance, they are unlikely to find the budget for PV installations. Two, private sector uses of power in Moroccan agriculture (except for mobile power uses, i.e., tractors and combines) are limited almost entirely to water pumping for irrigation. Because of the deep water table in Morocco (irrigation pumping is commonly done from a depth of 20 to 40 meters), PV may not be cost-competitive in most Moroccan irrigation in the next five years.

A modest potential for PV use was identified in non-agricultural rural services, such as refrigerators for rural clinics and rural radio-telephones. However, the main potential for PV in Morocco in the next five years lies mainly in the telecommunications sector and a number of sources were interested in obtaining PV product information and price quotes directly from American manufacturers. Applications include rural TV sets, TV repeater stations, microwave relay stations, and railroad, marine and airline signalling. Accordingly, these markets were investigated in order to include all likely PV applications in Morocco over the next five years.

The market size estimates obtained are only first approximations. They should, however, be sufficiently accurate to indicate the order of magnitude of the potential for different PV applications. The maximum size of the potential market for PV in Morocco over the next five years is found in Table 1.

TABLE 1 - PV Market Potential (1981-1986)

(a) Rural TV receivers	4800 units @ 45	Wp	216 kWP
(b) TV repeater stations	40 units @ 1	kWP	40 kWP
(c) Microwave stations	10 units @ 3.6	kWP	36 kWP
(d) Railroad stations	100 units @ 300	Wp	30 kWP
(e) Marine Signals: light buoys	100 units @ 240	Wp	24 kWP
	20 units @ 600	Wp	12 kWP
(f) Airport signals	5 units @ 1.2	kWP	6 kWP
(g) Traffic counters	100 units @ 60	Wp	6 kWP
(h) Rural radio telephones	40 units @ 100	Wp	4 kWP
(i) Refrigerators for rural clinics	50 units @ 200	Wp	10 kWP

Total Maximum Demand for PV 374 kWp

These market estimates were derived from development and expansion plans in each specific sector and specifications from both technical program managers and equipment suppliers on system characteristics. At an average customer cost for complete installed systems from \$18/Wp to \$30/Wp, the total potential market value is estimated in the range of \$6.6 to \$11 million over the period.

A number of American and French PV companies have already initiated marketing efforts in Morocco, largely concentrating on water pumping applications. A French company in cooperation with a state-owned corporation (SIMEF, in Fez) which manufactures diesel engines under license, and is also known to be considering system assembly in Morocco. There are some difficulties in doing business in Morocco, not exclusive to the PV market, and these relate to various import restrictions, financing availability, financing and payment assurances, and large distributor margins. In addition, American firms seeking to conduct business in Morocco are strongly advised to prepare materials in French and, secondarily, in Arabic; this relatively small action is very important and often overlooked by many types of U.S. companies. For PV, marketing of complete systems (as opposed to module sales to other equipment suppliers) and follow-up service are probably required in the Moroccan marketing and technical environmental. Well established Moroccan partners or distributors can aid significantly in avoiding some business pitfalls and in developing a market network.

A partial list of Moroccan contacts who have indicated an immediate interest in being contacted by U.S. PV product manufacturers is given below:

M. Ahizoune
Chief, Transmission Division
Ministry of Post, Telegraph & Telecommunications
Avenue Moulay Hassan
Rabat, Morocco Tel. 61935
Interest: Microwave and telephone repeater stations

M. Moktar El Housni
Chief, Electrical Signalling Office
Office National Des Chemins de Fer (ONCF)
Rabat, Morocco Tel. 74747
Interest: Remote switching gear, power sources

Mr. Leo De Vos
Representant Adjoint
Bureau de l'UNICEF pour l'Afrique du Nord
Rabat, Morocco
Interest: Refrigerator/freezers for rural health clinics

M. Mohammed Afkir
Chief, Television Relay Division
Radiodiffusion et Television Marocaine (RTM)
1 Rue El Brihi
Rabat, Morocco Tel. 62503
Interest: Remote television repeater stations

In addition the commercial officers of the American Embassy and the consulate can be very helpful in assisting with new business activities in Morocco. Their addresses are:

Mr. Russell Graham
Commercial Officer
Embassy of the United States of America
Avenue de Marrakech
Rabat, Morocco Tel. 62265

Mr. Don Meyers
Commercial Attaché
Consulate General of the USA
8 Avenue Moulay Youssef
Casablanca, Morocco

background notes

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Morocco

department of state • october 1978

OFFICIAL NAME: Kingdom of Morocco

PEOPLE

Most Moroccans are descended from Arabs and indigenous Berbers. The Arabs invaded Morocco in the 8th and 11th centuries, bringing with them what became the dominant culture. The established state religion is Islam. Morocco's Jewish minority now numbers about 20,000. About 100,000 foreign residents live in the country, mostly French and Spanish.

The principal language is Arabic, although Berber dialects are spoken widely in rural areas. French and Spanish are also used, particularly in government.

Population distribution is very uneven, with most of the people living west of the Atlas Mountains. Casablanca is the commercial and industrial center and leading seaport. Rabat is primarily the center for government activities. Tangier is a port city, and Fez and Marrakech are old walled cities.

Nearly half of the Moroccan children from ages 7 to 14 attend school. More than half the population is under 20 years of age. The literacy rate is 24 percent for men and 15 percent for women.

Morocco's most important university, Mohammed V, named after the

present monarch's father, is in Rabat. Here more than 10,000 students from Morocco and other areas of Africa and the Middle East study medicine, law, liberal arts, and the sciences. Also in Rabat are the two most important Moroccan institutions of higher education in engineering and agriculture—the Mohammedia School of Engineers and the Hassan II Agronomic Institute. At the more than 1,000-year-old Karaouine University in Morocco's religious capital, Fez, Islamic students from around the world study Islamic law and theology. At the secondary school level, a large number of Moroccan and French lycées, or high schools,

PROFILE

People

POPULATION: 18.6 million (1977). **ANNUAL GROWTH RATE:** 3% (1976-77). **ETHNIC GROUPS:** Arabs, Berbers (99.1%), French (.7%), Jews (.2%). **RELIGIONS:** Muslim 98.7%, Christian 1.1%, Jewish .2%. Islam is the state religion. **LANGUAGES:** Arabic (official), French, Berber dialects. **EDUCATION:** Years compulsory—6. Attendance—42%. Literacy—74% males, 15% females. **HEALTH:** Infant mortality rate—117/1,000 (US 17/1,000). Life expectancy—54 yrs. (1973). **WORK FORCE:** Agriculture—50%. Service—26%. Industry and commerce—15%.

Geography

AREA: 445,356 sq. km. (171,953 sq. mi.). **CITIES:** Capital—Rabat; Casablanca, Marrakech, Fez, Tangier. **TERRAIN:** Coastal plain, mountains, desert. **CLIMATE:** Mediterranean and desert.

Government

TYPE: Constitutional monarchy. **DATE OF INDEPENDENCE:** March 2, 1956. **CONSTITUTION:** March 10, 1972.

BRANCHES: Executive—King (Chief of State), Prime Minister (Head of Government), other ministers. Legislative—unicameral 4-yr. Parliament. Judicial—Supreme Court (appointed).

POLITICAL PARTIES: Istiqlal, Socialist Union of Popular Forces (USPF), Popular Movement (MP), Action Party (PA), Constitutional and Democratic Popular Movement (MPCD). **LABOR CONFEDERATIONS:** Moroccan Workers Union, Moroccan General Workers Union. **SUFFRAGE:** Universal over age 20. **ADMINISTRATIVE SUBDIVISIONS:** 30 Provinces, 2 Urban Prefectures, 3 Provinces in the Western Sahara. **DEFENSE:** 17.5% of GNP (1977 est.).

FLAG: 5-pointed green star centered on a red field.

Economy

GNP: \$9.55 billion (1977 est., current prices). **ANNUAL GROWTH RATE:** 6.4% (1973-77). **PER CAPITA INCOME:** \$520 (1977 est., current prices). **RATE OF INFLATION:** 13% (Mor. Gov. est., 1977).

NATURAL RESOURCES: Phosphates, iron, manganese, lead, fisheries.

AGRICULTURE: Products—barley, wheat, citrus fruits, vegetables, sugar beets, wool.

INDUSTRY: Types—mining, textiles, fishing.

TRADE (1977): **Exports**—\$1.3 billion: phosphate rock (\$469 million), phosphoric acid (\$49.8 million), citrus fruits (\$136 million), fresh vegetables (\$45.1 million), canned fruits and vegetables (\$56.4 million), canned fish (\$50.8 million), carpets (\$46.4 million). **US share:** 1.6%. **Imports**—\$3.2 billion: industrial capital goods (\$1.1 billion), fuels (\$370 million), foodstuffs (\$432 million), consumer goods (\$300 million). **US share:** 5.1%. **Major Trade Partners:** France, Italy, FRG, US, Communist bloc.

OFFICIAL EXCHANGE RATE: Dh (dirham)4=US\$1.

ECONOMIC AID RECEIVED: Total (from Western sources)—\$763.6 million. Technical \$80 million, capital assistance \$683.6 million, IBRD \$167.5 million, IMF \$69 million. **US aid:** \$24.7 million in 1978.

MEMBERSHIP IN INTERNATIONAL ORGANIZATIONS: UN, Organization of African Unity, Arab League.

offer instruction in both Arabic and French.

Native Moroccan dress is the *djellaba*, a long, hooded robe resembling the robes of Franciscan monks. Native footwear is the *babouche*, a pointed, open-heeled slipper. Many Arab women wear veils. Berber women go unveiled in their native villages, although they sometimes wear a veil when visiting outside their villages. At social functions Moroccan women wear *kaf-tans*, beautifully designed and trimmed robes usually worn with exquisite gold belts. The native dress of southern Moroccan men is characterized by the beautiful blue hues of their robes and a black *chechia* worn around the head as protection from the searing sun.

GEOGRAPHY

Morocco lies on the northwest corner of Africa, with nearly 1,950 kilometers (1,200 mi.) of coastline on the Atlantic Ocean and the Mediterranean Sea. It is the closest of all African countries to Europe, separated only by the Strait of Gibraltar. Morocco's African neighbors are Algeria and, with the Western Sahara interposed, Mauritania.

Topographically, Morocco is sharply divided into an open, agriculturally rich plains area in the northwest and economically poor mountains and plateaus in the eastern and southern portions. The coastal plains and plateaus, fronting for some 560 kilometers (350 mi.) on the Atlantic Ocean, are cut off from the interior by the encircling mountains. Peaks of the High Atlas and Middle Atlas ranges rise to 4,150 meters (13,600 ft.) above sea level; peaks of the Rif Massif rise sharply from the coast to heights of 2,150 meters (7,000 ft.) above sea level. The coastal plains are the most densely populated, economically advanced, and Arabized part of the country. Nearly all Morocco's major cities are in this area.

Beyond the mountains, eastern Morocco is a series of arid, rolling plateaus that form a continuation of the Algerian High Plateaus in the

northeast and gradually drop into the Sahara Desert in the south and southeast. Population in these areas is sparse and concentrated in scattered oases along the Draa and Ziz Rivers. These oases have spawned numerous migrations across the mountains into inner Morocco, and from these migrations have risen several of the ruling dynasties.

On the Atlantic side of the Atlas Mountains the climate is semitropical; on the other side dry steppes merge into the Sahara Desert. The Mediterranean coast has a mild, sunny climate. April through October are usually dry months.

HISTORY

Morocco's history has been shaped largely by its strategic location. Beginning with the Phoenicians, a long series of invaders have swept the land. From the first century B.C. until the fifth century A.D. it was part of a Roman province. Then the Vandals, Visigoths, and Byzantine Greeks successively ruled the area. Finally, in the eighth century A.D., Islamic Arab forces occupied Morocco. The present Alaouite dynasty, which has ruled Morocco since 1649, claims descent from the prophet Mohammed.

Because of its location and resources, Morocco was involved early in the competition of European powers for influence and control in Africa. France indicated a strong interest in Morocco beginning in 1830. Following recognition by the United Kingdom in 1904 of France's "sphere of influence" in Morocco, the Algeciras Conference (1906) formalized France's "special position" and entrusted policing of Morocco to France and Spain jointly. The Treaty of Fez (1912) made Morocco a protectorate of France; Spain also assumed a protectorate position over the northern and southern zones.

The first nationalist political parties based their arguments for Moroccan independence on such World War II declarations as the Atlantic Charter. A manifesto of the *Istiqlal* (Independence) Party in 1944 was one of the

earliest public demands for independence. That party subsequently provided most of the leadership for the nationalist movement.

France's exile of Sultan Mohammed V in 1953 and replacement of him with the unpopular Mohammed Ben Arafat provided the spark which set off terrorist opposition to the French protectorate. France allowed Mohammed V to return to Morocco in 1955, and negotiations which led to independence began the following year.

The Kingdom of Morocco recovered its political independence from France on March 2, 1956. By subsequent agreements with Spain (1956 and 1958), control over the Spanish zones of influence was restored to Morocco, and on October 29, 1956, the signing of the Tangier Protocol politically reintegrated the former international zone. Spain, however, retained control over the small enclaves of Ceuta and Melilla in the north and the enclave of Ifni in the south. Ifni became a part of Morocco in 1969.

King Hassan II succeeded to the throne on March 3, 1961, on the death of his father, the highly respected Mohammed V. He recognized the Royal Charter proclaimed by his father on May 8, 1958, which outlined steps toward establishing a constitutional monarchy.

A Constitution providing for representative government under a strong monarchy was approved by referendum on December 7, 1962, and elections were held in 1963. In June 1965 the King invoked article 35 of the Constitution and declared a "state of exception" following student riots and civil unrest. He assumed all legislative as well as executive powers and named a new government not based on political parties.

King Hassan in July 1970 submitted to referendum a new Constitution with a still stronger monarchy. Its approval and the subsequent elections formally ended the 1965 "state of exception."

On July 10, 1971, a nearly successful coup at Skhirat was followed by

Morocco's third Constitution, approved by popular referendum in early 1972. The new Constitution, while keeping King Hassan's powers intact, enlarged from one-third to two-thirds the number of parliamentary representatives to be directly elected.

After a second coup attempt (August 16, 1972), relations between the opposition and the Palace deteriorated, and agreement could not be reached at that time on opposition participation in elections. The King subsequently appointed a series of nonpolitical cabinets responsible only to him.

However, a rapprochement between the King and the opposition, stemming from cooperation on the Sahara issue, began in mid-1974. This led to the holding of elections with participation of the parties for local councils on November 12, 1976. Parliamentary elections, which had been deferred in view of tensions over the Sahara dispute, first with Spain and then with Algeria, were held in June 1977; they resulted in a two-thirds majority for government-backed Independents and allied groups.

The new Parliament began its first regular session in October 1977. A new government was also formed at that time with participation of two political parties—the Istiqlal and the Popular Movement—as well as the Independents.

GOVERNMENT

The King is Head of State. Under the 1972 Constitution a Prime Minister appointed by the King is Head of Government. The Members of the 264-seat unicameral Parliament are elected to 4-year terms. Two-thirds of the Members, as opposed to one-third under the 1970 Constitution, are chosen directly by universal adult suffrage; the remaining one-third is indirectly elected by community councils and business, labor, and farmer groups.

The highest court in the independent judicial structure is the Supreme Court, whose judges are appointed by the King.

For administrative purposes Morocco is divided into 30 Provinces and two Prefectures (Rabat and Casablanca). Each is headed by a Governor appointed by the King. Morocco has divided its portion of the former Spanish Sahara into three additional Provinces.

Principal Government Officials

Chief of State—King Hassan II
Prime Minister—Ahmed Osman

Ministers

Justice—Maati Bouabid
Interior—Dr. Mohamed Benhima
Foreign Affairs—M'Hamed Boucetta
Finance—Abdellatif Ghissassi
President of the Parliament—Dey Ould Sidi Baba
Ambassador to the U.S.—Ali Bengliaoun
Ambassador to the UN—Abdellatif Filali

Morocco maintains an Embassy in the U.S. at 1601 21st Street NW, Washington, D.C. 20009 (tel. 202-462-7979).

POLITICAL CONDITIONS

Morocco has seven principal political groups. The first is an "independent" grouping which took form under the titular leadership of Prime Minister Osman during the 1977 elections. This group, with overt official backing, captured 141 of the 264 seats in Parliament. Members of this group have held continuing discussions on molding it into an organized political party, and preliminary organizing steps were taken in September 1978.

The Istiqlal (Independence) Party is the largest political party and has 51 parliamentary seats. Its strength is believed to be primarily urban, and Fez and Meknes are its traditional strongholds. The party has a progressive "Socialist" platform but a relatively conservative leadership. Before entering the October 1977 government with eight ministers, including party leader Boucetta as Foreign Minister, the Istiqlal had been in opposition since

TRAVEL NOTES

Climate and Clothing—Morocco has wide daily variations in temperature. Climate along the coastal areas, though temperate, is damp. Tourists should wear clothing suitable for the climate in Washington, D.C.

Customs and Currency—Passports are required. US tourists do not need visas for visits of 3 months or less. Dirhams may not be imported or exported. All currency or traveler's checks must be declared upon entry. Smallpox vaccinations are required.

Health—Though not high by US standards, public health standards are steadily improving. When outside the large cities and resort areas, tourists should carry water purification tablets or a supply of purified drinking water. Eat only well-prepared fruits and vegetables.

Telecommunications—Local and international telephone and telegraph service is available. A working knowledge of French is essential.

Transportation—Flights are available from New York, often with stops. Adequate public transportation—air, rail, and bus—is available among the principal cities. Travelers should have a working knowledge of French. The highway system is good; directions are clearly marked.

1963. The Istiqlal was clearly the predominant party at independence and for the first few years thereafter, although other parties were beginning to form.

The *Union Socialiste des Forces Populaires* (USFP) split away from the original major left-of-center party, the *Union Nationale des Forces Populaires* (UNFP), in 1974. This action formalized a longstanding cleavage in that organization. The USFP is somewhat to the left of the Istiqlal, and its leaders present it as being in the tradition of the social democratic parties in Europe. The USFP enjoys its greatest strength among urban intellectuals and salaried private and public employees. It is the principal opposition party in Parliament, with 15 seats.

READING LIST

These titles are provided as a general indication of the material published on this country. The Department of State does not endorse unofficial publications.

American University. *Area Handbook for Morocco*. Washington, D.C.: U.S. Government Printing Office, 1972.

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Julien, Charles. *History of North Africa: Tunisia, Algeria, Morocco*. Trans. by John Petrie. New York: Praeger, 1970.

Maxwell, Gavin. *Lords of the Atlas: The Rise and Fall of the House of Glaoua*. New York: Dutton, 1966.

Moore, Clement H. *Politics in North Africa: Algeria, Morocco, Tunisia*. Boston: Little, Brown, 1970.

Waterbury, John. *North for the Trade*. Berkeley: Univ. of Calif. Press, 1972.

Commander of the Faithful. New York: Columbia Univ. Press, 1970.

The Popular Movement (MP) is based primarily on Berber support in rural areas. It has 44 seats in Parliament and is represented in the Cabinet.

A smaller faction, the Constitutional and Democratic Popular Movement, has far less support.

The *Parti du Progres et du Socialisme* (PPS) is the latest label for the small Moroccan Communist Party. Always tolerated, the party has been officially illegal for various periods, the latest between 1969 and late 1974. Although the party has very little political influence it does have some support from younger, disaffected elements of the society. It has only one seat in Parliament but gained 100,000 votes in the June 1977 elections.

The Union Nationale des Forces

Populaires (UNFP) arose out of a schism between radical and conservative wings of the Istiqlal in 1959. Reduced substantially by the formation of the USFP, it has been beset in recent years by internal differences and is considered by many to be dependent for its existence primarily on the support of the *Union Marocaine du Travail* (UMT), the country's largest labor federation. The UNFP was the only opposition party that opted not to participate in the recent elections. There is also an array of small pro-government parties, none of which presently has significant strength on a national scale.

ECONOMY

The Moroccan economy is characterized by a fundamental imbalance between a demographically small but highly productive modern industrial sector and a large agricultural sector. Nearly two-thirds of the population is engaged in agriculture, which accounts only for about 25 percent of domestic production.

The agricultural sector plays a crucial role in the Moroccan economy, supplying much of the country's domestic food requirements and 33 percent of total merchandise exports. Within the sector itself, however, are great extremes of productivity. About 34 percent of Morocco's agricultural land—held by 3 percent of the farming population—is utilized in large-scale farm operations. These modernized agrobusiness operations produce over 85 percent of commercial production, including almost all of the citrus fruit, fresh vegetables, wine, and other agricultural export products. In spite of the application of modern agricultural technology to cultivation of the most promising export products, agriculture remains greatly dependent on Morocco's frequently extreme variations in annual rainfall. In addition, the vast majority of Moroccan farms are small and family operated, and primitive methods of cultivation produce low yields.

Chronic agricultural shortfalls in

recent years have placed a considerable burden on Morocco's external trade balance. Agricultural export revenues covered only about 60 percent of agricultural import costs in 1977. The importance of the agricultural sector is underscored by the close relationship between the quality of the annual harvest and gross national product growth rates. The disastrous harvest in 1977 was an important contributing factor to that year's sluggish GNP growth; the apparently very good 1978 harvest is expected to increase this year's GNP.

In spite of the critical importance of the agricultural sector in the Moroccan economy, Morocco's economic planners have based their economic development strategy primarily on rapid industrialization, a major element of which is the exploitation and domestic processing of its potentially vast mineral wealth.

Its phosphates industry, in terms of current production, export revenues, estimated reserves, and projected utilization, is Morocco's most important economic asset. Morocco has over 70 percent of the world's proven phosphate deposits and is the world's largest phosphate exporter. It presently trails the United States and the Soviet Union in total production. Over the long term, Morocco's planners hope to stimulate overall economic development on the basis of its phosphate industry.

Partly on the basis of these high expectations, the government embarked on an ambitious, and largely foreign-financed, capital-intensive development program. In 1973, when world phosphate prices soared 450 percent, the economy experienced a boom.

Since 1977, however, the Moroccan economy has suffered a relatively steep decline in growth which is just now showing signs of abating. Following a record increase of 8.5 percent (in real terms) in 1976, the GNP grew by only 1.3 percent (in real terms) in 1977.

Several factors account for Morocco's currently tight economic position:

First, the government misjudged the world phosphate market's behavior in 1974-75 and was slow to adjust its economic and financial planning to declining world demand and prices in 1976-77. The government's unrealistically high expectations of phosphate earnings resulted in a series of severe annual shortfalls in export revenues, made up to a large extent by a further enlargement of the country's foreign debt. Second, a decline in agricultural production as a result of a bad 1976-77 crop year reduced agricultural export earnings and required the country to import significantly more wheat than anticipated. Third, a decline in demand in Morocco's vital European market (linked to the basically sluggish performance of European economies in 1977) contributed further toward reduced export earnings. Partly as a result of these factors, Morocco's trade deficit increased from \$1.34 billion in 1976 to a record \$1.9 billion in 1977. Fourth, the intensification of the conflict in the former Spanish Sahara continued to drain resources, revenue, labor, and managerial expertise from many productive sectors of the national economy.

However, the government has decided to press forward with its development plans despite its recession, war, balance of trade, liquidity, and external debt problems. High priority projects (e.g., phosphate mining treatment facilities, cement plants, agriculture, port facilities, and hydroelectric projects) continue to receive funding, although the government recently has

taken the first of what are expected to be a number of austerity measures to bring national expenditures more into line with available resources. For example, the expected 1978-82 5-year plan has been replaced by a less ambitious transitional 3-year plan. In addition, new government restrictions on some imports are designed to improve Morocco's balance-of-trade position.

Despite recent problems, however, Morocco's resources, industrial potential, and continued ability to obtain large commercial loans from international financial institutions make the country's long-term economic prospects appear quite good.

FOREIGN RELATIONS

Since Morocco attained independence, its foreign policy, officially attached to the principle of non-alignment, has been basically sympathetic to the West. Long-term goals continue to be the strengthening of its influence in the Arab world, Africa, and the Maghreb and defining its position with Europe, particularly France and Spain.

The major current issue in Morocco's foreign relations is its absorption of the Western Sahara, relinquished by Spain in February 1976. Division of that territory between Morocco and Mauritania (which occupies the southern portion) has led to a strengthening of relations between them and a sharp rise in tensions with Algeria. A succession of third-party mediation attempts to resolve the dispute has proven unsuccessful, and fighting in the Sahara has continued. A July 1978 coup in Mauritania has led to a new round of diplomatic maneuvering, the outcome of which is unclear.

Lately, Morocco has increasingly expressed its concern over growing "radical" influences in Africa and has become more outspoken—and activist—in joining cause with the more moderate regimes of Africa. Its dispatch of troops to Zaire in 1977 and again in 1978 are the most striking manifestations of this trend. Despite this con-

cern, economic relations with the Soviet Union began to bloom in 1978 with the signing of accords for the long-term development of the Meskala phosphate deposit, which could make Morocco the U.S.S.R.'s biggest trading partner in Africa. Warming economic ties have not, however, been reflected in the political realm, where relations remain proper but cool.

Morocco has sought to play a constructive role in the search for peace in the Middle East, firmly supporting President Sadat's visit to Israel while at the same time stressing the need for Arab unity and Palestinian rights.

Morocco enjoys excellent relations with nearly all of the Arab world (especially with Saudi Arabia), the only exceptions being Algeria, Libya, and Southern Yemen. In the wake of the significantly improved relations with Spain which followed the Western Sahara agreement, the question of Spanish occupation of the northern enclaves, Ceuta and Melilla, is not, for the moment, a priority issue with the Moroccan Government.

U.S.-MOROCCO RELATIONS

According to conclusions based on recent historical research, Morocco recognized the Government of the United States in 1777. Formal U.S. relations with Morocco date to 1787 when the two nations negotiated a Treaty of Peace and Friendship. It was renegotiated in 1836 and is still in force, constituting the longest unbroken treaty relationship in U.S. history.

U.S.-Moroccan relations are characterized by mutual respect and friendship. They were strengthened by King Hassan's visits to the United States in March 1963 and February 1967 and by Secretary of State Kissinger's visits to Morocco in October 1974 and April 1977.

U.S. objectives with respect to Morocco include maintaining friendly and cooperative relations; supporting Moroccan efforts to develop an increasingly effective administration; and aiding its domestic, social, and econom-

FOREIGN BUSINESS INFORMATION

For information on foreign economic trends, commercial development, production, trade regulations, and tariff rates, contact the Bureau of International Commerce, US Department of Commerce, Washington, DC 20230. This information is also available from any of the Department of Commerce district offices located throughout the US.

ic progress U.S. airbases in Morocco were withdrawn in December 1963 by mutual agreement.

Prior to 1957, American aid to Morocco was channeled through France, which reprogrammed some \$50 million in U.S. aid to the French Government as development grants to Morocco. From fiscal year 1956 through 1978, U.S. aid to Morocco totaled \$855 million—\$372 million in grants and \$483 million in loans, of which P.L. 480 loans accounted for 50 percent; supporting assistance and development

loans, 40 percent; and technical assistance, 10 percent. However, beginning with FY 76, a revised strategy was introduced for assistance to Morocco which is aimed at improving the quality of life for Morocco's poor, particularly those who reside in rural areas and depend on dryland agriculture.

Some 153 Peace Corps volunteers in Morocco are engaged in English language training, architecture, civil engineering, rural sanitation, athletic coaching, agricultural extension services, and social work.

Principal U.S. Officials

Ambassador—Richard B. Parker
Counselor of Embassy—Jay P. Moffat
Director, AID Mission—Harold Fleming
Public Affairs Officer—James Rentzschler
Consul General, Casablanca—Peter Sebastian
Consul General, Tangier—Harland Eastman
 The U.S. Embassy in Morocco is located at 2 Ave. de Marrakech, Rabat

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